

ABSTRACT

Techniques for an electronic shelf label (ESL) system which uses a digital modulation technique for a modulated backscatter uplink from an ESL to a communication base station (CBS) which utilizes pseudo-random sequences instead of a single continuous wave frequency. The CBS transmits a message to an ESL using a Manchester coded amplitude modulated carrier. After receiving the message, the ESL responds by reflectively modulating a continuous wave (CW) signal with a pseudo-random code sequence. Multiple pseudo-random code sequences may be chosen, with each code sequence corresponding to a particular response. The code sequence is modulated onto a kHz carrier which is used to reflectively modulate the CW signal received from the CBS. The CBS then receives the reflectively modulated signal and correlates the received signal to determine message transmitted.